

PATENT ABSTRACTS OF JAPAN

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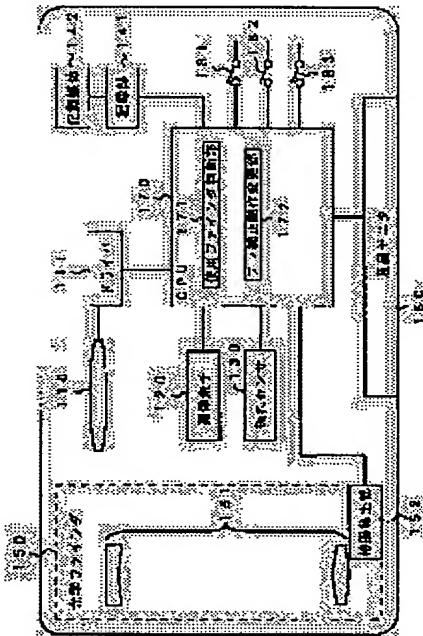
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(54) SHAKE CORRECTING CAMERA**(57)Abstract:**

PROBLEM TO BE SOLVED: To provide a shake correcting camera capable of setting the shake correcting operation to be an optimum state in both cases where a photographer uses an ocular finder to take a picture and where the photographer uses a non-ocular finder to take a picture.

SOLUTION: This camera is provided with a used finder judging part 171 for judging whether an optical finder 150 is used or a liquid crystal monitor is used by using an ocular detection part 152, and a shake correcting operation changing part 172 changing the shake correcting operation of a shake correcting lens 110 in accordance with the judged result. When the optical finder 150 is not used, the shake correcting operation is not performed.



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CLAIMS

[Claim(s)]

[Claim 1]The Bure amendment camera comprising:

A photographing optical system.

An image sensor which picturizes an object image through said photographing optical system.

A shake detector which detects deflection of a camera.

The Bure compensation means which amends Bure of an image acquired by said image sensor according to a detection result of said shake detector, An eyepiece finder which observes a photographic subject where eyes are brought close, and a non-eyepiece finder which observes a photographic subject in a position which looked aside, A use finder judgment part which judges any shall be used between said eyepiece finder and said non-eyepiece finder, and the Bure correction operation changing part which changes operation of said Bure compensation means according to a decision result of said use finder judgment part.

[Claim 2]The Bure amendment camera when it is judged in the Bure amendment camera according to claim 1 that said non-eyepiece finder is used, wherein said Bure correction operation changing part suspends operation of said Bure compensation means.

[Claim 3]In the Bure amendment camera according to claim 1, said Bure correction operation changing part, The Bure amendment camera characterized by changing operation of said Bure compensation means so that a range in which the Bure amendment is more possible than a case where it is judged that said eyepiece finder is used when it is judged that said non-eyepiece finder is used may be expanded.

[Claim 4]In the Bure amendment camera according to claim 3, said Bure compensation means, It has an optical Bure compensation means which amends Bure by moving member turning so that a relative position of an object image which carries out image formation on said image sensor, and said image sensor may be changed, The Bure amendment camera, wherein said Bure correction operation changing part expands a range in which the Bure amendment is possible by expanding a movable range of said member turning when it is judged that said non-eyepiece finder is used.

[Claim 5]In the Bure amendment camera according to claim 3, said Bure compensation means, It has an optical Bure compensation means which amends Bure by moving member turning so that a relative position of an object image which carries out image formation on said image sensor, and said image sensor may be changed, The Bure amendment camera, wherein said Bure correction operation changing part expands a range in which the Bure amendment is possible by setting up center bias of said member turning weakly when it is judged that said non-eyepiece finder is used.

[Claim 6]The Bure amendment camera characterized by said member turning being said a part of photographing optical system in the Bure amendment camera according to claim 4 or 5.

[Claim 7]In the Bure amendment camera according to claim 1, said Bure compensation means, Have an electronic Bure compensation means which amends Bure by shifting and outputting a part of image acquired by said image sensor, and said Bure correction operation changing part, When it is judged that said non-eyepiece finder is used, The Bure amendment camera changing operation of said Bure compensation means so that said electronic Bure compensation means may not be operated, when said electronic Bure compensation means is operated, and it is judged that said eyepiece finder is used.

[Claim 8]In the Bure amendment camera according to claim 1, said shake detector, Have an angular velocity sensor which detects change of angular velocity of a camera, and an image

sensor which detects movement of an image in a video signal which said image sensor outputs, and said Bure correction operation changing part, When it is judged that said non-eyepiece finder is used, Operation of said Bure compensation means is changed so that Bure of an image may be amended based on a detection result of said angular velocity sensor and said image sensor, The Bure amendment camera changing operation of said Bure compensation means so that Bure of an image may be amended based on a detection result of said angular velocity sensor when it is judged that said eyepiece finder is used.

[Claim 9]In the Bure amendment camera according to claim 1, said shake detector, Have an angular velocity sensor which detects change of angular velocity of a camera, and an acceleration sensor which detects change of acceleration of a camera, and said Bure correction operation changing part, When it is judged that said non-eyepiece finder is used, Operation of said Bure compensation means is changed so that Bure of an image may be amended based on a detection result of said angular velocity sensor and said acceleration sensor, The Bure amendment camera changing operation of said Bure compensation means so that Bure of an image may be amended based on a detection result of said angular velocity sensor when it is judged that said eyepiece finder is used.

[Claim 10]Have the reference-value operation part which calculates a reference value made into a standard of the Bure correction operation in the Bure amendment camera according to claim 1 according to set-up cutoff frequency, and said Bure correction operation changing part, The Bure amendment camera changing operation of said Bure compensation means so that said cutoff frequency may be lowered rather than a case where it is judged that said eyepiece finder is used when it is judged that said non-eyepiece finder is used.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention has an eyepiece finder and a non-eyepiece finder, and relates to the Bure amendment camera which amends Bure by a shaking hand.

[0002]

[Description of the Prior Art]There were many things provided with the eyepiece finder which checks a photographing area etc. by a photography person's making eyes approach and looking in with the object for still pictures, and any camera for animations, from the former. In recent years with the electronic "still" camera and video camera which are made to carry out image formation of the image lights which let the taking lens pass on an image sensor, change a still picture and an animation into an electrical signal, and photo them. Since an image can be dealt with electrically, there are many cameras which provide the non-eyepiece finder which can check a taken image in the state where used the large-sized liquid crystal display monitor etc., and it looked aside apart from an eyepiece finder. The photography person who uses a camera provided with an eyepiece finder and a non-eyepiece finder can use an eyepiece finder and a non-eyepiece finder according to an operating condition or liking, choosing them suitably.

[0003]On the other hand, it is not concerned with the object for still pictures, and animations, but the Bure amendment camera provided with the Bure compensator which amends Bure resulting from the shaking hand at the time of stock photography is manufactured, and Bure can be effectively reduced now. Even when the deflection of a camera was detected, Bure correction operation was performed based on this and the conventional Bure amendment camera was taking [the photography person] a photograph with the shake sensor etc. using an eyepiece finder, even if it was a case where a photograph was being taken using a non-eyepiece finder, it was only performing same Bure correction operation.

[0004]

[Problem(s) to be Solved by the Invention]However, how depending on which a camera sways differed greatly by the case where a photograph is being taken using an eyepiece finder, and the case where a photograph is being taken using a non-eyepiece finder. Since the camera touches the face, and the side is also kept and the elbow is also specifically being fixed when a photograph is being taken using an eyepiece finder, there is little deflection of a camera and it does not produce Bure easily, either.

[0005]On the other hand, when a photograph is being taken using a non-eyepiece finder, a camera did not contact the face, and the elbow is extended in many cases, how depending on which a camera sways differs, and the deflection itself may be large and unexpected deflection may arise. When excessive power was put in noting that I would obstruct Bure, it might Bure-come to be easy on the contrary.

[0006]Since it was only performing same Bure correction operation even if it was a case where a photograph was being taken using a non-eyepiece finder even when the photography person was taking a photograph using an eyepiece finder, the conventional Bure amendment camera mentioned above, When the Bure correction operation was set up according to one photographing method, in the case of the photographing method of another side, there was a problem that could not carry out Bure amendment or an uncomfortable strange action was shown.

[0007]Even when the photography person is taking a photograph using an eyepiece finder, even if the technical problem of this invention is a case where a photograph is being taken using a non-eyepiece finder, it is providing the Bure amendment camera which can set the Bure correction

operation as the optimal state.

[0008]

[Means for Solving the Problem] This invention solves said technical problem by the following solving means. In order to understand easily, numerals corresponding to an embodiment of this invention are attached and explained, but it is not limited to this. Namely, an image sensor (120) with which an invention of claim 1 picturizes an object image through a photographing optical system and said photographing optical system, A shake detector (130) which detects deflection of a camera, and the Bure compensation means (110,111,173) which amends Bure of an image acquired by said image sensor according to a detection result of said shake detector, An eyepiece finder (150) which observes a photographic subject where eyes are brought close, A non-eyepiece finder (160) which observes a photographic subject in a position which looked aside, A use finder judgment part (171) which judges any shall be used between said eyepiece finder and said non-eyepiece finder, It is the Bure amendment camera provided with the Bure correction operation changing part (172) which changes operation of said Bure compensation means according to a decision result of said use finder judgment part.

[0009] In the Bure amendment camera according to claim 1, an invention of claim 2 said Bure correction operation changing part (172), When it is judged that said non-eyepiece finder (160) is used, it is the Bure amendment camera suspending operation of said Bure compensation means (110,111,173).

[0010] In the Bure amendment camera according to claim 1, an invention of claim 3 said Bure correction operation changing part (172), When it is judged that said non-eyepiece finder (160) is used, as a range in which the Bure amendment is more possible than a case where it is judged that said eyepiece finder (150) is used is expanded, it is the Bure amendment camera changing operation of said Bure compensation means.

[0011] In the Bure amendment camera according to claim 1, an invention of claim 4 said Bure compensation means (110,111), It has an optical Bure compensation means which amends Bure by moving member turning (110) so that a relative position of an object image which carries out image formation on said image sensor (120), and said image sensor may be changed, Said Bure correction operation changing part (172) is the Bure amendment camera expanding a range in which the Bure amendment is possible by expanding a movable range of said member turning (110), when it is judged that said non-eyepiece finder (160) is used.

[0012] In the Bure amendment camera according to claim 1, an invention of claim 5 said Bure compensation means (110,111), It has an optical Bure compensation means which amends Bure by moving member turning (110) so that a relative position of an object image which carries out image formation on said image sensor (120), and said image sensor may be changed, Said Bure correction operation changing part (172) is the Bure amendment camera expanding a range in which the Bure amendment is possible by setting up center bias of said member turning (110) weakly, when it is judged that said non-eyepiece finder (160) is used.

[0013] An invention of claim 6 is the Bure amendment camera, wherein said member turning (110) is said a part of photographing optical system in the Bure amendment camera according to claim 4 or 5.

[0014] In the Bure amendment camera according to claim 1, an invention of claim 7 said Bure compensation means (110,111,173), Have an electronic Bure compensation means (173) which amends Bure by shifting and outputting a part of image acquired by said image sensor, and said Bure correction operation changing part (172), When it is judged that said non-eyepiece finder (160) is used, It is the Bure amendment camera changing operation of said Bure compensation means so that said electronic Bure compensation means may not be operated, when said electronic Bure compensation means is operated, and it is judged that said eyepiece finder (150) is used.

[0015] In the Bure amendment camera according to claim 1, an invention of claim 8 said shake detector (130), It has an angular velocity sensor which detects change of angular velocity of a camera, and an image sensor (174) which detects movement of an image in a video signal which said image sensor outputs, When it is judged that said non-eyepiece finder (160) is used, said Bure correction operation changing part (172), Operation of said Bure compensation means (110,111,173) is changed so that Bure of an image may be amended based on a detection result of said angular velocity sensor and said image sensor, When it is judged that said eyepiece finder (150) is used, it is the Bure amendment camera changing operation of said Bure compensation means so that Bure of an image may be amended based on a detection result of said angular velocity sensor.

[0016]In the Bure amendment camera according to claim 1, an invention of claim 9 said shake detector (130), Have an angular velocity sensor which detects change of angular velocity of a camera, and an acceleration sensor which detects change of acceleration of a camera, and said Bure correction operation changing part (172), When it is judged that said non-eyepiece finder (160) is used, Operation of said Bure compensation means (110,111,173) is changed so that Bure of an image may be amended based on a detection result of said angular velocity sensor and said acceleration sensor, When it is judged that said eyepiece finder (150) is used, it is the Bure amendment camera changing operation of said Bure compensation means so that Bure of an image may be amended based on a detection result of said angular velocity sensor.

[0017]An invention of claim 10 a reference value made into a standard of the Bure correction operation in the Bure amendment camera according to claim 1, Have the reference-value operation part (175) calculated according to set-up cutoff frequency, and said Bure correction operation changing part (172), When it is judged that said non-eyepiece finder (160) is used, it is the Bure amendment camera changing operation of said Bure compensation means so that said cutoff frequency may be lowered rather than a case where it is judged that said eyepiece finder (150) is used.

[0018]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described in more detail, referring to drawings etc.

(A 1st embodiment) Drawing 1 is a block diagram showing the outline of a 1st embodiment of the Bure amendment camera by this invention. The Bure amendment camera in this embodiment, The Bure correcting lens 110, the driver 111, the image sensor 120, the shake sensor 130, the Records Department 141, the recording medium 142, the optical finder 150, the finder optical system 151, the eyepiece primary detecting element 152, the liquid crystal display monitor 160, CPU170, the monitor switch 181, the half-press switch 182, It is what is called a digital still camera that has full-press switch 183 grade and mainly photos a still picture.

[0019]The Bure correcting lens 110 is a part of photographing optical system which is not illustrated, and is an optical Bure compensation means which comprises the single lens or two or more lenses which can move the inside of the flat surface which abbreviated-intersects perpendicularly with an optic axis. With the driver 111, the Bure correcting lens 110 is driven in the direction which abbreviated-intersects perpendicularly with an optic axis, and deflects the optic axis of a photographing optical system.

[0020]The driver 111 is an actuator which drives the Bure correcting lens 110 based on the driving signal transmitted from CPU170. The driver 111 has an actuator which is not illustrated for driving the Bure correcting lens 110, a position detection sensor which detect the position of the Bure correcting lens 110 and which is not illustrated, etc. Since it is necessary to drive the Bure correcting lens 110 in the direction of two dimensions, it is necessary to form this driver 111 by the 2-way which intersects perpendicularly but, and by this embodiment, since it is easy, only one direction is shown.

[0021]The image sensor 120 is an element outputted as an electrical signal in response to the image of the photographic subject which passed the photographing optical system containing the Bure correcting lens 110, and the CCD image sensor is used in this embodiment.

[0022]The shake sensor 130 is a shake detector which detects vibration by the shaking hand of the Bure amendment camera, and is provided with the angular velocity sensor which detects the angular velocity of a camera by this embodiment.

[0023]The Records Department 141 is a portion which records the picture image data obtained eventually, and records on the recording medium 142.

[0024]The recording media 142 are recording media, such as a memory, a disk medium, a tape medium, etc. which have picture image data recorded, and are formed in the camera by the Records Department 141, enabling free attachment and detachment.

[0025]When a photography person brings close and looks into eyes to an eye contacting part, the optical finder 150 is an eyepiece finder which checks a photographing area etc. optically, and has the finder optical system 151 and the eyepiece primary detecting element 151.

[0026]Although a photographing optical system is an independent optical system, zooming of a taking lens can be interlocked with, and the finder optical system 151 can operate, and can observe a homotype enclosure from an eye contacting part mostly with the range which a photographing optical system projects on the image sensor 120.

[0027]The eyepiece primary detecting element 151 is the sensor formed in order that a photography person might judge whether the optical finder is used, and uses the line of sight

detection device which combined the infrared emitting diode which floodlights infrared light, and the area sensor in this embodiment.

[0028]The liquid crystal display monitor 160 is a non-eyepiece finder observed after it displayed the object image which the image sensor 120 picturized and the photography person has looked aside.

[0029]CPU170 is a control section which controls operation of the Bure amendment camera in this embodiment, The driver 111, the image sensor 120, the shake sensor 130, the Records Department 141, the eyepiece primary detecting element 152, the liquid crystal display monitor 160, the monitor switch 181, the half-press switch 182, and the full-press switch 183 grade are electrically connected. CPU170 has the use finder judgment part 171 and the Bure correction operation changing part 172. The use finder judgment part 171 is a portion which judges any the photography person shall use between the optical finder 150 and the liquid crystal display monitor 160, and judges in this embodiment based on the detection result of the eyepiece primary detecting element 152. The Bure correction operation changing part 172 is a portion which changes operation of the Bure correcting lens 110 according to the decision result of the use finder judgment part 171.

[0030]The monitor switch 181 is a switch which changes the display of the liquid crystal display monitor 160, and un-displaying.

[0031]The half-press switch 182 is a switch which is interlocked with half-press operation of the release button which is not illustrated, and is set to ON. When this half-press switch 182 is set to ON, a series of photographing preparation operation, such as photometry arithmetic by the photometry part which is not illustrated and an autofocus drive by the autofocus actuator which is not illustrated, is started.

[0032]The full-press switch 183 is a switch which is interlocked with the full-press operation which pushes in a release button further, and is set to ON. When this switch is set to ON, an image is incorporated from the image sensor 120 and a series of photographing operation of the Records Department 141 recording picture image data on the recording medium 142 is performed.

[0033]The Bure amendment camera in this embodiment is provided with the optical finder 150 and the liquid crystal display monitor 160, and, as for any are used, a photography person can choose arbitrarily. Drawing 2 is the figure in which the photography person who uses the Bure amendment camera in this embodiment compared and showed the shooting posture at the time of using the optical finder 150, and the shooting posture at the time of using the liquid crystal display monitor 160. Since the camera touches the face in order to use it, bringing eyes close to the eye contacting part of the optical finder 150, when the optical finder 150 is used, and the side is also kept and the elbow is also being fixed, there is little deflection of a camera and it does not produce Bure easily, either. Therefore, if the Bure correcting lens 110 is operated and Bure is amended, the quality picture which Bure does not worry at all can be acquired.

[0034]On the other hand, when a photograph is being taken using the liquid crystal display monitor 160, a camera did not contact the face, and the elbow is extended in many cases, how depending on which a camera sways differs from the time of using the optical finder 150, and the deflection itself may be large and unexpected deflection may arise. If excessive power is put in noting that I will obstruct Bure, it will Bure-come to be easy on the contrary. When there is a limit in the swing quantity of the camera which can carry out Bure amendment and extremely big deflection arises by operation of the Bure correcting lens 110, even if it cannot be coped with but performs Bure amendment, it cannot guarantee that Bure has not occurred in the picture acquired. In this case, for a photography person, in spite of having performed Bure amendment, Bure will arise in the acquired picture.

[0035]Then, in this embodiment, when the optical finder 150 was being used, Bure correction operation was performed, but when the liquid crystal display monitor 160 was used, we decided not to perform Bure correction operation. Drawing 3 is a figure explaining the flow of the photographing operation in this embodiment. First, a push on the half-press switch 182 will start operation.

[0036]In Step (hereafter referred to as S) 1, a photography person judges whether the optical finder 150 is used or the liquid crystal display monitor 160 is used by the use finder judgment part 171. When the optical finder 150 is being used, it progresses to S2, and when the liquid crystal display monitor 160 is being used, it progresses to S3.

[0037]In this embodiment, although the use finder judgment part 171 judges based on the detection result of the eyepiece primary detecting element 152, Even if the monitor switch 181

is ON (the liquid crystal display monitor 160 is a displaying condition), when the eyepiece primary detecting element 152 has detected the eyepiece, it is judged that the optical finder 150 is used. The eyepiece primary detecting element 152 does not detect an eyepiece, but since it is thought that it is in a no finder state when the monitor switch 181 is also OFF (the liquid crystal display monitor 160 is a non-display state), it is made to progress to S3 as using the liquid crystal display monitor 160 also in this case. In the case of the camera which is not provided with the eyepiece primary detecting element 152, it may be made to judge according to the state of the monitor switch 181.

[0038]In S2, as performing Bure amendment, the Bure correction operation changing part 172 sends a signal to the driver 111 so that the Bure amendment may be operated.

[0039]In S3, as not performing Bure amendment, the Bure correction operation changing part 172 sends a signal to the driver 111 so that the Bure correcting function may be stopped. However, operation of the shake sensor 130 is continued.

[0040]When it judges whether whether release's having been pushed and or not the full-press switch 183 turned on in S4 and the full-press switch 183 turns on (release was pushed), It progresses to S5, and when the full-press switch 183 is OFF (release is not pushed), it returns to S1.

[0041]In S5, with an image sensor, an image pick-up is performed, and the Records Department 141 records picture image data on the recording medium 142, and ends operation.

[0042]When the optical finder 150 is used according to this embodiment, Since we decided not to perform Bure amendment when Bure amendment was performed and the liquid crystal display monitor was used, in spite of having performed Bure amendment, the case where it is said that Bure arises in the acquired picture can be lessened, and the optimal control for a using form can be performed.

[0043](A 2nd embodiment) Drawing 4 is a figure explaining the flow of the photographing operation in a 2nd embodiment. This embodiment differs in the contents of the Bure correction operation which the Bure correction operation changing part 172 changes to a 1st embodiment, and since other portions are the same as that of a 1st embodiment, explanation of the overlapping portion is omitted.

[0044]Like a 1st embodiment, although the Bure correcting lens 110 is a part of photographing optical system which is not illustrated and is an optical Bure compensation means which comprises the single lens or two or more lenses which can move the inside of the flat surface which abbreviated-intersects perpendicularly with an optic axis, It is possible for it to be wide range than a 1st embodiment, and to move, and it can respond to a bigger shaking hand than a 1st embodiment.

[0045]In S1, when it is judged that it progresses to S2-2 and the liquid crystal display monitor 160 is used by it like a 1st embodiment when it is judged by the use finder judgment part 171 that the optical finder is used, it progresses to S3-2.

[0046]In S2-2, the Bure correction operation changing part 172 sends a signal to the driver 111 so that it may operate by the operational mode 1 with a narrow range which can operate the Bure correcting lens 110. Since the operational mode 1 limits the range of the Bure correcting lens 110 which can be operated and narrows it, the range of the shaking hand which can respond (size) also becomes small. However, that much highly precise control can be performed and quality of the picture acquired can be made high.

[0047]In S3-2, the Bure correction operation changing part 172 sends a signal to the driver 111 so that it may operate by the operational mode 2 with a wide range which can operate the Bure correcting lens 110. Since the operational mode 2 can enlarge the range of the shaking hand which can respond instead of stopping the accuracy of control somewhat low, it is suitable at the time of the liquid crystal display monitor use to which vibration by a shaking hand becomes large.

[0048]Drawing 5 is a figure explaining the flow of the photographing operation in the modification gestalt of a 2nd embodiment. In the Bure amendment camera, in order for the Bure correcting lens 110 to prevent moving and colliding to a physical movement limit, the center bias which is control that central force becomes strong may be set up, so that it separates from the center of the movable range. This modification gestalt is the example which changed the range in which substantial operation of the Bure correcting lens 110 is possible by attaching strength to center bias like S2-2b shown in drawing 5, and S3-2b according to the finder currently used.

[0049]When the optical finder 150 is used according to this embodiment, Since the range which can operate the Bure correcting lens 110 is made large and Bure amendment is performed when

the range which can operate the Bure correcting lens 110 is narrowed, Bure amendment is performed and the liquid crystal display monitor is used, Bure correction operation suitable for each can be performed.

[0050](A 3rd embodiment) Drawing 6 is a block diagram showing the outline of the Bure amendment camera in a 3rd embodiment. Although the Bure amendment camera in this embodiment is a video camera which photos an animation, since the portion related to this invention is the same as that of a 1st embodiment, a common portion attaches the same numerals and omits explanation. The Bure amendment camera in this embodiment differs in the electronic Bure amendment part 173 and recording start switch 184 grade from a 1st embodiment.

[0051]The electronic Bure amendment part 173 is a portion which amends Bure of the picture to record by shifting and outputting the image which carried out image formation to the image sensor 120 to the direction of deflection, and a counter direction according to swing quantity.

Drawing 7 is a figure explaining the contents of operation of the electronic Bure amendment part 173. The electronic Bure amendment part 173 uses a part of image pick-up feasible region A of the image sensor 120 as the power range B1. Drawing 7 (a) When the image which carries out image formation to the image pick-up feasible region A like drawing 7 (b) by a shaking hand shifts, the object image is kept from moving with the image outputted by shifting a power range to B-2 according to deflection.

[0052]The recording start switch 184 has played the role instead of the half-press switch 182 in a 1st embodiment, and the full-press switch 183, and photography is started when the recording start switch 184 is set to ON.

[0053]Drawing 8 is a figure explaining the flow of the photographing operation in a 3rd embodiment. According to this embodiment, when the optical finder 150 is used, it is made not to perform electronic Bure amendment (S2-3). Since a part of image pick-up feasible region A will be outputted if the electronic Bure amendment part 173 performs Bure amendment, the total pixel number of the picture acquired will decrease and image quality will deteriorate. Then, since there are few shaking hands when the optical finder 150 is being used, it is supposed that Bure amendment by the electronic Bure amendment part 173 is not performed, but only Bure amendment by the Bure correcting lens 110 is performed.

[0054]On the other hand, when the optical finder 150 is not used, suppose that Bure amendment by the electronic Bure amendment part 173 is also performed (S3-3). The size of deflection becomes large when the optical finder 150 is not used. Therefore, sufficient Bure amendment may be unable to be performed only by the Bure amendment by the Bure correcting lens 110. Then, in this embodiment, when the optical finder 150 is not used, it is made to perform Bure amendment by the electronic Bure amendment part 173.

[0055]Since according to this embodiment Bure amendment by the electronic Bure amendment part 173 is not performed when the optical finder 150 is being used, a high definition image can be acquired. Since Bure amendment by the electronic Bure amendment part 173 is performed when the optical finder 150 is not being used, Bure who cannot amend can be amended only by the Bure amendment by the Bure correcting lens 110.

[0056](A 4th embodiment) Drawing 9 is a block diagram showing the outline of the Bure amendment camera in a 4th embodiment. A 4th embodiment differs from a 1st embodiment in that the image sensor 174 was formed in CPU170 in a 1st embodiment. The image sensor 174 is a portion which analyzes the motion of an object image which carried out image formation on the image sensor 120, and detects deflection.

[0057]Drawing 10 is a figure explaining the flow of the photographing operation in a 4th embodiment. According to this embodiment, when the optical finder 150 is used, it is made not to detect the deflection which uses the image sensor 174 (S2-4). When the optical finder 150 is used, most is the deflection by rotation of a camera and the ingredient of a shaking hand can detect the deflection of a camera by using the shake sensor 130 using an angular velocity sensor. In this case, even if it uses the image sensor 174, processing takes time and useless electric power is only consumed.

[0058]On the other hand, when the optical finder 150 is used, When the optical finder 150 which is made to detect the deflection which uses the image sensor 174 (S3-4) is not used, The deflection (shift deflection) of parallel translation other than run out also produces the gestalt of vibration, and many ingredients of undetectable deflection are contained in the angular velocity sensor which the shake sensor 130 has. If the image sensor 174 is used, it is certainly detectable even if shift deflection has occurred.

[0059]When the optical finder 150 is used according to this embodiment, When the deflection which uses the image sensor 174 is not detected but the optical finder 150 is used, Amendment can be ensured even if it is deflection including many shift deflections in case the optical finder 150 is not used (when using the liquid crystal display monitor 160), since the deflection which uses the image sensor 174 is detected.

[0060](A 5th embodiment) Drawing 11 is a block diagram showing the outline of the Bure amendment camera in a 5th embodiment. A 5th embodiment differs from a 1st embodiment in that the reference-value operation part 175 was formed in CPU170 in a 1st embodiment. The reference-value operation part 175 is operation part which calculates the reference value (value equivalent to the output value of the shake sensor 130 in the state of rest of a camera) for the driving signal operation which drives the Bure correcting lens 110 from the deflection detecting signal which the shake sensor 130 detected. The reference-value operation part 175 is equivalent to a low pass filter as a function, if this cutoff frequency is changed, the performance of the Bure amendment will also change, and if cutoff frequency is generally lowered, a response can make high late maximum performance of the Bure amendment to instead of.

[0061]Drawing 12 is a figure explaining the flow of the photographing operation in a 5th embodiment. According to this embodiment, when the optical finder 150 is used, let cutoff frequency be a high value (S2-5). On the other hand, when the optical finder 150 is not used, let cutoff frequency be a low value (S3-5). since it usually comes out that the frequency of a shaking hand becomes low and there is when the optical finder 150 is not used (when the liquid crystal display monitor 160 is used), a reference value can be correctly calculated by setting up cutoff frequency low according to this. If cutoff frequency is not made low, the reference value acquired will be acquired as a signal near the detecting signal of deflection, and it will become impossible to perform right Bure amendment.

[0062]When the optical finder 150 is used according to this embodiment, Since cutoff frequency is made into a low value when cutoff frequency is made into a high value and the optical finder 150 is not used, the optimal reference value for the shaking hand in condition of use can be calculated, and right Bure amendment can be performed.

[0063](Modification gestalt) Without being limited to the embodiment described above, various modification and change are possible and they are also within the limits with equivalent this invention.

(1) Although the video camera which photos the digital still camera which photos a still picture, or an animation in each embodiment was mentioned as the example and explained, The embodiment of not only this but a digital still camera may be transposed to a video camera, and the embodiment of a video camera may be transposed to the reverse at a digital still camera. It may be a camera which can photo a still picture and an animation.

[0064](2) In a 4th embodiment, when the optical finder 150 was used, the example which detects the deflection which uses the image sensor 174 was shown, but. Not only this but in addition to [as a shake sensor] an angular velocity sensor for example, an acceleration sensor may be formed, and an acceleration sensor may detect shift deflection.

[0065](3) Although the example which judges a finder in use with the eyepiece primary detecting element 152 or the monitor switch 181 was shown, it may be made to judge the use finder judgment part 171 in each embodiment, using [not only this but] a pressure-sensitive sensor for example.

[0066](4) In each embodiment, although the eyepiece finder showed the example which is an optical finder, it may be an eyepiece finder not only using this but a monitor small for example. Not only a liquid crystal finder but a plasma display etc. may use other display devices also about a non-eyepiece finder.

[0067](5) In each embodiment, although the example which has an optical Bure compensation means by the Bure correcting lens 110 as a Bure compensation means was shown, it may have only an electronic Bure compensation means in addition to this, for example, and may have both.

[0068]

[Effect of the Invention]As explained in detail above, according to the invention of claim 1, since it has the Bure correction operation changing part which changes operation of the Bure compensation means according to the decision result of a use finder judgment part, the optimal Bure amendment for the state of a shaking hand which is different with every use finder can be performed.

[0069]According to the invention of claim 2, although the effect of the Bure amendment cannot be expected since operation of the Bure compensation means is suspended when it is judged

that the non-eyepiece finder is used, it can prevent a photography person depending on the Bure amendment. Since a photography person will use an eyepiece finder when he wants to prevent Bure, the deflection of a camera decreases more and he can lessen Bure of the picture acquired more.

[0070]According to the invention of claim 3, since the range in which the Bure amendment is more possible than the case where it is judged that the eyepiece finder is used is expanded when it is judged that the non-eyepiece finder is used, Bure amendment when using the eyepiece finder can be made highly precise. Since the pixel number of the picture which can make a larger field a power range and outputs it on an image sensor out of the image which carries out image formation can be increased while using the eyepiece finder when performing electronic formula Bure amendment, a high definition image can be acquired.

[0071]According to the invention of claim 4, since the range in which the Bure amendment is possible by expanding the movable range of member turning is expanded when it is judged that the non-eyepiece finder is used, Bure amendment when using the eyepiece finder can be made highly precise.

[0072]According to the invention of claim 5, since the range in which the Bure amendment is possible by setting up the center bias of member turning weakly is expanded when it is judged that the non-eyepiece finder is used, the range in which the Bure amendment is possible can be changed easily, without needing a new member etc.

[0073]According to the invention of claim 6, since member turning is a part of photographing optical system, it is applicable to an optical Bure compensation means.

[0074]When it is judged according to the invention of claim 7 that the non-eyepiece finder is used, Bure amendment can be performed without reducing image quality, when there are few shaking hands for which the eyepiece finder is used since an electronic Bure compensation means is operated, and an electronic Bure compensation means is not operated when it is judged that the eyepiece finder is used.

[0075]When it is judged according to the invention of claim 8 that the non-eyepiece finder is used, When it is judged that Bure of an image is amended based on the detection result of an angular velocity sensor and an image sensor, and the eyepiece finder is used, Since Bure of an image is amended based on the detection result of an angular velocity sensor, while Bure amendment highly precise while using the eyepiece finder can be performed and the non-eyepiece finder is used, Bure by the shift deflection mainly generated only in this state can also amend.

[0076]When it is judged according to the invention of claim 9 that the non-eyepiece finder is used, When it is judged that Bure of an image is amended based on the detection result of an angular velocity sensor and an acceleration sensor, and the eyepiece finder is used, Since Bure of an image is amended based on the detection result of an angular velocity sensor, while Bure amendment highly precise while using the eyepiece finder can be performed and the non-eyepiece finder is used, Bure by the shift deflection mainly generated only in this state can also amend.

[0077]When it is judged according to the invention of claim 10 that the non-eyepiece finder is used, Since cutoff frequency is lowered rather than the case where it is judged that the eyepiece finder is used, when the eyepiece finder is used, or when the non-eyepiece finder is used, an exact reference value can be calculated and more exact Bure amendment can be performed.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the outline of a 1st embodiment of the Bure amendment camera by this invention.

[Drawing 2]It is the figure in which the photography person who uses the Bure amendment camera in this embodiment compared and showed the shooting posture at the time of using the optical finder 150, and the shooting posture at the time of using the liquid crystal display monitor 160.

[Drawing 3]It is a figure explaining the flow of the photographing operation in this embodiment.

[Drawing 4]It is a figure explaining the flow of the photographing operation in a 2nd embodiment.

[Drawing 5]It is a figure explaining the flow of the photographing operation in the modification gestalt of a 2nd embodiment.

[Drawing 6]It is a block diagram showing the outline of the Bure amendment camera in a 3rd embodiment.

[Drawing 7]It is a figure explaining the contents of operation of the electronic Bure amendment part 173.

[Drawing 8]It is a figure explaining the flow of the photographing operation in a 3rd embodiment.

[Drawing 9]It is a block diagram showing the outline of the Bure amendment camera in a 4th embodiment.

[Drawing 10]It is a figure explaining the flow of the photographing operation in a 4th embodiment.

[Drawing 11]It is a block diagram showing the outline of the Bure amendment camera in a 5th embodiment.

[Drawing 12]It is a figure explaining the flow of the photographing operation in a 5th embodiment.

[Description of Notations]

110 Bure correcting lens

120 Image sensor

130 Shake sensor

141 Records Department

142 Recording medium

150 Optical finder

151 Finder optical system

152 Eyepiece primary detecting element

160 Liquid crystal display monitor

170 CPU

171 Use finder judgment part

172 Bure correction operation changing part

173 Electronic Bure amendment part

174 Image sensor

175 Reference-value operation part

181 Monitor switch

182 Half-press switch

183 Full-press switch

184 Recording start switch

[Translation done.]

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(51)InQ' G 03 B 6/00	監別記号 P 1 G 03 B 5/00 C 03 B 5/00 J 5 C 02 2	(71)出願人 株式会社ニコン 東京都千代田区丸の内3丁目2番3号 (72)発明者 竹本 正生 丸山和子(代) (74)代理人 丸山和子(代) 丸山和子(代)
13/02	審査請求 未請求 開示要項10 OL (全14頁) 最終頁に缺く	【請求項1】 撮影光学系と、 前記撮影光学系を介した被写体像を撮像する撮像部子 と、 カメラの振れを検出する検出部と、 前記振れ検出部の検出結果に応じて、前記撮像部子によ て得られる像のブレを補正するブレ補正手段と、 目を近づけた状態で被写体を観察する眼鏡ファインダ と、 目を離した位置で被写体を観察する非眼鏡ファインダ と、 前記眼鏡ファインダ及び前記非眼鏡ファインダのいずれ が使用されているかの判断を行う使用ファインダ判断部 と、 前記使用ファインダ判断部の判断結果に応じて、前記ブ レ補正手段の動作を変更するブレ補正動作変更部と、 を備えるブレ補正カメラ。
(21)出願番号 特願2000-350715(P2000-350715)	(71)出願人 00000412 株式会社ニコン 東京都千代田区丸の内3丁目2番3号 (72)発明者 竹本 正生 丸山和子(代) (74)代理人 丸山和子(代)	【請求項2】 請求項1に記載のブレ補正カメラにおいて、 前記ブレ補正動作変更部は、前記非眼鏡ファインダが使 用されていると判断した場合には、前記ブレ補正手段の 動作を停止すること、 前記ブレ補正動作変更部は、前記非眼鏡ファインダが使 用されていると判断した場合には、前記ブレ補正手段の 動作を停止するブレ補正カメラ。
(22)出願日 平成12年11月17日(2000.11.17)		【請求項3】 請求項1に記載のブレ補正カメラにおいて、 前記ブレ補正動作変更部は、前記非眼鏡ファインダが使 用されていると判断した場合には、前記ブレ補正手段の 動作を停止すること、 前記ブレ補正動作変更部は、前記非眼鏡ファインダが使 用されていると判断した場合には、前記ブレ補正手段の 動作を停止することによりもブレ補正可能な範囲を拡大 すること、 前記ブレ補正手段の動作を変更すること、 を特徴とするブレ補正カメラ。
		【請求項4】 請求項3に記載のブレ補正カメラにおいて、 前記ブレ補正手段は、前記撮像部子の相対位置を変化さ せる被写体像と前記撮像部子との相対位置を変化させる ように移動部材を移動することによりブレを補正する光学的ブ レ補正手段とし、 前記ブレ補正動作変更部は、前記非眼鏡ファインダが使 用されていると判断した場合には、前記移動部材の可動 範囲を拡大することによりブレ補正可能な範囲を拡大す ること、 を特徴とするブレ補正カメラ。
		【請求項5】 請求項3に記載のブレ補正カメラにおいて、 前記ブレ補正手段は、前記撮像部子の相対位置を変化さ せる被写体像と前記撮像部子との相対位置を変化させ るように移動部材を移動することによりブレを補正する 光学的ブレ補正手段とし、 前記ブレ補正動作変更部は、前記非眼鏡ファインダが使 用されていると判断した場合には、前記移動部材の可動 範囲を拡大することによりブレ補正可能な範囲を拡大す ること、 前記ブレ補正手段の動作を変更すること、 を特徴とするブレ補正カメラ。

(54) [発明の名稱] ブレ補正カメラ

(67) [要約]
【図1】 振動が検出部ファインダを通過して撮影して
いる場合でも、非眼鏡ファインダを使用して撮影してい
る場合であっても、ブレ補正動作を最適な状態に設定す
ることができるブレ補正カメラを提供する。

【解決手段】 振動検出部112によつて、光学ファイ
ンダ110が使用されているか、液晶モニタが使用され
ているかを判断する使用ファインダ判断部111を有
し、その判断結果に応じてブレ補正レンズ110のブレ
補正動作を変更するブレ補正動作変更部112を構え、
光学ファインダ110が使用されていない場合には、ブ
レ補正動作を行わないようとする。

最良頁に缺く

【請求項1】 撮影光学系と、
前記撮影光学系を介した被写体像を撮像する撮像部子
と、
カメラにおいて、
前記移動部材は、前記振動光学系の一部であること、
を特徴とするブレ補正カメラ。
【請求項6】 請求項4又は請求項5に記載のブレ補正
カメラにおいて、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断するブレ補正カメラ。

【請求項7】 請求項1に記載のブレ補正カメラにおいて、
前記ブレ補正手段は、前記撮像部子により得られた映像
の一部を処理して出力することによりブレを補正する電
子的ブレ補正手段を有し、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断した場合には、前記電子的ブレ補正
手段の動作を行つて、前記ブレ補正手段が使用されてい
ると判断した場合には、前記電子的ブレ補正手段の動作
を行わないように前記ブレ補正手段の動作を変更するこ
と、
前記ブレ補正手段は、前記撮像部子により得られた映像
を特徴とするブレ補正カメラ。

【請求項8】 請求項1に記載のブレ補正カメラにおいて、
前記撮像部子は、カメラの角速度の変化を検出する角
速度センサと、前記撮像部子が検出する映像信号中にお
ける像の移動を検出するイメージセンサとを有し、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断した場合には、前記角速度センサ及
び前記イメージセンサの検出結果に基づいて像のブレを補
正するよう前に記ブレ補正手段の動作を変更し、前記
接眼ファインダが使用されていると判断した場合には、
前記角速度センサの検出結果に基づいて像のブレを補正
するよう前に記ブレ補正手段の動作を変更すること、
を特徴とするブレ補正カメラ。

【請求項9】 請求項1に記載のブレ補正カメラにおいて、
前記撮像部子は、カメラの角速度の変化を検出する角
速度センサと、前記撮像部子が検出する映像信号中にお
ける像の移動を検出する接眼ファインダが使用されてい
る場合には、前記角速度センサ及び前記接眼ファイン
ダが前記角速度センサの検出結果に基づいて像のブレを補
正するよう前に記ブレ補正手段の動作を変更し、前記接
眼ファインダが使用されていると判断した場合には、前
記角速度センサの検出結果に基づいて像のブレを補正す
るよう前に記ブレ補正手段の動作を変更すること、
を特徴とするブレ補正カメラ。

【請求項10】 請求項1に記載のブレ補正カメラにおいて、
前記ブレ補正手段は、前記撮像部子の相対位置を変化さ
せる被写体像と前記撮像部子との相対位置を変化させ
るために移動部材を移動することによりブレを補正する光
学的ブレ補正手段とし、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断した場合には、前記移動部材の可動
範囲を拡大することによりブレ補正可能な範囲を拡大す
ること、
前記ブレ補正手段の動作を変更すること、
を特徴とするブレ補正カメラ。

【請求項11】 請求項1に記載のブレ補正カメラにおいて、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断した場合には、前記移動部材のセ
ンサを有し、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断した場合には、前記角速度センサ及
び前記角速度センサの検出結果に基づいて像のブレを補
正するよう前に記ブレ補正手段の動作を変更し、前記接
眼ファインダが使用されていると判断した場合には、前
記角速度センサの検出結果に基づいて像のブレを補正す
るよう前に記ブレ補正手段の動作を変更すること、
を特徴とするブレ補正カメラ。

【請求項12】 請求項1に記載のブレ補正カメラにおいて、
前記ブレ補正手段は、前記撮像部子の相対位置を変化さ
せる被写体像と前記撮像部子との相対位置を変化させ
るために移動部材を移動することによりブレを補正する光
学的ブレ補正手段とし、
前記ブレ補正動作変更部は、前記非眼鏡ファインダが使
用されていると判断した場合には、前記移動部材の可動
範囲を拡大することによりブレ補正可能な範囲を拡大す
ること、
前記ブレ補正手段の動作を変更すること、
を特徴とするブレ補正カメラ。

用されていると判断した場合は、前記説明ファイナ
が使用されていると判断した場合は、前記説明用被膜
を下げるよう前に前記アレルギー反応の動作を変更するこ
と、
を含むとするアレルギーカメラ。
説明の詳細な説明】

【0 0 0 1】
【0 0 0 2】
【0 0 0 3】
【0 0 0 4】
【0 0 0 5】
【0 0 0 6】

【絶縁部の構成分析】 本発明は、皮膚ファインダ及
び皮膚鏡ファインダを有し、手端部によるブレを補正す
るアレルギーカメラに関するものである。

【従来の技術】 従来から、静止画用、動画用いずれのカ
メラでも、撮影者が目を保証させてのぞき込むことによ
り撮影範囲を確認する機能ファインダを備えるものが
多かった。また、近年、撮影レンズを通して映像光を絞
り位置面上に框線させて、静止画や動画を撮影場所に変換
して撮影する電子スチルカメラやビデオカメラでは、快
速な被写体の変動に対応するため、大型の液晶モニタを
ニタ等を使用、目を離した状態で撮影画像を確認する
ことができる。前記説明ファインダとは
別に取付けガメラが多い、専用ファインダと呼ばれるア
イマッピングなどを備えるカメラを適用する撮影装置や
やや好みに応じて、後述ファインダと呼ばれるア
イマッピングして使用することができる。

一方で、静止画用、動画用に限らず、手
持神社撮影時の手振れに因るブレを補正するブレ補正
装置を備えたアレルギーカメラが製造され、ブレを効果的
に低減できるようになっている。従来のブレ補正カメラ
は、運転センサ等によってカメラの振れを検出して、こ
れにに基づいてブレ補正動作を行い、撮影者が握るファイ
ダを使用して撮影している場合でも、前記説明ファイ
ダを使用して撮影している場合であっても、同様なブレ
補正動作を行ふのみであった。

【発明が解決しようとする課題】 しかし、前記説明ファイン
ダを使用して撮影している場合と、前記説明ファインダを
使用して撮影している場合とでは、カメラの握り方が大
きく異なる。具体的には、撮影ファインダを使用して
して撮影している場合には、直面にカメラが握り難くなっている
ので、カメラの握り方が少なく、ブレも生じにい。
これに対して、前記説明ファインダを使用して
いる場合には、カメラが画面に接触しておら
ず、また、ひじがひじに固定されている
ので、握り自体が大きく、手の握り難
い場合が異なるとともに、更に、ブレを抑えようとして余計な
力を入れると、知つてブレをあくことがあつた。

前述した従来のブレ補正カメラは、撮影者

地れを説明する圖である。本実験装置では、光学ファインダ 1.5 が使用されている場合には、電子的ブレ補正を行わないようになる (S 2 - 3)。電子的ブレ補正部 1.7 によってブレ正を行ふと、撮像可能距離 A の一部のみを出力するので、供られる画像の総像数が少くなり、画質が劣化してしまう。そこで、光学ファインダ 1.5 を使用している場合には、甲種が少ないのに、電子的ブレ補正部 1.7 にによるブレ補正を行はず、ブレ補正レ인지 1.1 によるブレ補正のみを行ふこととしている。

[0054]一方、光学ファインダ 1.6 が使用されない場合には、電子的ブレ補正部 1.7 によるブレ補正も行うこととする (S 3 - 3)。光学ファインダ 1.5 が使用されない場合には、画の大きさが大きくなる。したがって、ブレ補正レ인지 1.1 によるブレ補正のみでは、十分ダメブレ補正が行えない場合がある。そこで、本実験装置では、光学ファインダ 1.5 が使用されている場合には、電子的ブレ補正 1.7 によるブレ補正も行うこととしている。

[0059]本実験装置によれば、光学ファインダ 1.6 の成分が多く含まれる。イメージセンサ 1.7 を使用すれば、シフト風景の発生といいも、それを確実に検出することができる。

[0060]本実験装置によれば、光学ファインダ 1.6 を使用している場合には、イメージセンサ 1.7 が使用された場合の出力を行かず、光学ファインダ 1.5 が使用している場合には、イメージセンサ 1.7 を使用した風景の検出を行ううの、光学ファインダ 1.5 が使用されない場合の出力を行かず、光学センサ 1.6 を使用している場合のシフト風景を多く含むれておあっても、確実に補正を行ふことができる。

[0061]〔第 5 実施形態〕図 1.1 は、第 5 実施形態におけるブレ補正カーラの断面表示パロット図である。第 5 実施形態は、第 4 実施形態における CPU 1.7 0 内に、基準位置算出部 1.7 を取付けた点のみが第 1 実施形態と異なる。基準位置算出部 1.7 は、複数センサ 1.3 が挿入した基板上から、ブレ補正レ인지 1.1 0 を駆動する駆動信号算出部のたとのう位置を基準ににおける駆動セグメント 1.3 の出力信号に相当する值を出力する。

0を適用している場合には、電子のブレ補正部1.7にによるブレ修正を行なうので、高画質な快感を得ることがができる。また、光学ファインダー1.60を使用していない場合には、電子のブレ補正部1.7によるブレ補正を行なうので、ブレ補正レシダス1.10によるブレ補正のみでは、補正しきれないブレを補正することができる。

[0056] (第4実施形態) 図10は、第4実施形態におけるブレ補正メカの概要を示すブロック図である。

概要と実施形態は、第1実施形態におけるC17.100に、イメージセンサ1.74を設けた点のみが第1実施形態と異なる。イメージセンサ1.74は、通常電子1.20と並んで設けられた複数の感光部の動きを解析して、図面を検出する部分である。

[0057] 図10は、第4実施形態における撮影動作の流れを説明する図である。本実施形態では、光学ファインダー1.50が使用されている場合には、イメージセンサ1.74を使用した図面の検出を行なうようにする

(S2-4)。光学ファインダー1.50が使用されていない場合には、手錠部1.60の成分は、大部分がカメラの回転によ

りしてローパスフィルタと同様であり、この透達周波数を変化させると、ブレ補正の性能が変化し、一概に透達周波数を下げると、応答が遅くなったりに、ブレ補正の最高性能を高めることができる。

[0061] 図12は、第5実施形態における撮影動作の流れを説明する図である。本実施形態では、光学ファインダー1.50が使用されている場合には、透達周波数を高めとする。一方、光学ファインダー1.5が使用されていない場合には、透達周波数を低い値とする (S5-5)。光学ファインダー1.50が使用されている場合には、透達周波数を6.0が使用されている場合としない場合 (透達モード1.60が使用されている場合) は、手錠部の透達周波数が異なるのが通常であるので、これらに合わせて透達周波数も併せて設定することによって、基準値を正確に求めることができる。既に透達周波数を低くしないと、得られる基準値が歪められ形で出射する信号に近い信号として得られるので、透達周波数を高い値と

[0062] 本実施形態における透達周波数を高い値としない場合に、透達周波数を6.0が使用されている場合には、手錠部1.60の成分は、大部分がカメラの回転によ

を用いることにより、カメラの回路を検出することが可能である。この場合にイメージセンサ174を用いても、処理に時間がかかり、また、無駄な電力を消費するだけである。

[10068]一方、光学ファインダ160が使用されている場合には、イメージセンサ174を用いた回路の出力をを行うようにする（S3-4）。光学ファインダ151が使用されない場合には、光の形態が回路によってシフトする以外の平行移動の回り（シフト原）が生じ、センサ130が検出する負荷センサでは、検出できなくなってしまう。

は、遠隔開閉部を近づけて操作するので、使用状態における手離れに最も適した基準値を計算することができ、正しいブレ補正を行うことができる。

[100631]（变形形態）以上説明した実施形態に規定されることなく、様々な変形や変更が可能であって、それも本実施形態の範囲内である。

（1）各光学部又は、静止画を撮影するデジタルスチルカメラ又は、動画撮影用デジタルカメラを例に挙げて説明したが、これに限らず、デジタル・スチルカメラを複数個を並べて、複数枚同時に撮影しておき、カメラの映像情報を並び替えることで、複数枚の静止画を撮影する。

し、その逆に、ビデオカメラの映像形態をデジタル・システムに置き換えてよい。また、静止画と動画を撮影可能なカメラであってよい。

【0064】(2) 第二実施形態において、光学ファイバ150が使用されている場合には、イメージセンサ174を用いた位置の抽出を行う例を示したが、これに限らず、例えば、撮像素子として加速速度センサに加えて速度センサを組み合わせ、加速度センサによってシフト操作を検出してもよい。

【0065】(3) 各実施形態において、使用ファインダ判断部171は、接眼検出部152又はモニタスイッチによってシフト操作を検出してもよい。

〔00661〕(4) 各種遮蔽装置において、接眼ファインチ 1.81によって、使用中のファインダーを判断する所を示したが、これに劣る、例えば、屈正センサを利用して判断するようにしてもらひ。

〔00661〕(5) 各種遮蔽装置において、接眼ファインチが、光学式のファインダーである所を示したが、これに限りらず、例えば、小型のミクログラフィーを利用した接眼ファインチであるつてもよい。また、非接眼ファインダについても、も、ラバーマディスプレイ等、他の表示装置等を適用してもよい。

〔00671〕(5) 全般遮蔽装置において、ブレ補正手段として、ブレ補正レンズ 1.10による光学的ブレ補正手段を示す例を示したが、これに限らず、例えば、電子

的レ補正手段のみを有していてもよいし、両方を有してもよい。
【0068】 [発明の効果] 以上詳しく述べたように、請求項1の明によれば、使用用ファインダ判断部の判断結果に基づいて、レ補正手段の動作を変更するレ補正動作変更部を備えるので、使用用ファインダ部によって異なる手筋の状態に適応した補正を行なうことができる。
【0069】請求項2の別途によれば、半透鏡フィン

ができる。また、撮影者は、フレを防ぎたいときに、接眼ファインダーを使用することになる。カメラの接眼ファインダーを用いることで、撮影者のフレがより少なくて済む。また、接眼ファインダーを使用することができる。

10070 青葉軍の弱易によれば、非接眼ファインダーが使用されていると判断した場合には、接眼ファインダーが使用されていると判断した場合には、接眼ファインダを使用しているときのフレ補正を精度にすることができる。また、接眼ファインダを使用して、オートフレームを用いる場合には、接眼ファインダを使用しているときに撮影者上に接する像の中からより高い

ダが使用されていると判断した場合には、移動部材の可動範囲を拡大することによりフレーム修正可能な範囲を拡大するので、接頭ファインダーを使用しているときのフレーム修正を高精度にすることができる。

【0072】従来5.6倍明るい、非赤眼ファインダーが使用されていると判断した場合には、移動部材のセンターハイアスを弱く設定することによりフレーム修正可能な範囲を拡大するので、新たな部材等を必要とせずにフレーム修正可能な範囲を拡大することができる。

【0073】従来6.6倍明るい、光学的フレーム修正手段に用いる光学系の一部であるので、光学的フレーム修正手段が、接頭光学系の一部であるので、光学的フレーム修正手段に用いる接頭光学系の一部であることがができる。

【0074】請求項7の発明によれば、非接眼ファインダが使用されていると判断した場合には、電子的ブレ補正手段の動作を行わないと判断した場合には、電子的ブレ補正手段の動作を行わないので、接眼ファインダが使用されている手順の少く、ブレ補正を行なうことができる。

【0075】請求項8の発明によれば、非接眼ファインダが使用されていると判断した場合には、角速度センサ及びイメージセンサの出力結果に基づいて像のブレを補正することができる。

〔076〕請求項6の別名によれば、非接触ファインダが使用されていると判断した場合には、角速度センサ及び角速度センサから検出される角速度に基づいて他のフレームを補正するので、接眼ファインダを使用しているときには、より高精度度かつ正確度を有することができます。また、非接触ファインダを使用しているときには、主にこの状況でのみ発生するシフト現象によるフレームを補正することができること。

【007】 難易度 1.0 の発明によれば、非接戦ファイターアイコンが使用されていると判断した場合には、接戦ファイターアイコンが使用されていると判断した場合には、接戦アイコンが使用されている場合よりも接戦アシダラが使用されている場合を下げるまでの、接戦アシダラが使用されている場合でも、非接戦アイコンが使用されている場合でも、正確な意思認識を実現することができ、より正確なフレームを操作することができる。

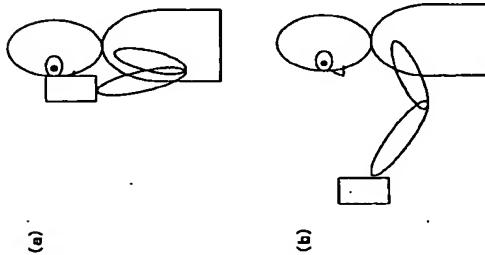
【図1】本発明によるブレ補正カメラの第1実施形態の概要を示すブロック図である。

(9) する図である。
【図1】第1実施形態における撮影動作の流れを説明する。
【図2】第2実施形態における撮影動作の流れを説明する。
【図3】第3実施形態における撮影動作の流れを説明する。
【図4】第4実施形態における撮影動作の流れを説明する。
【図5】第5実施形態における撮影動作の流れを説明する。
【図6】第6実施形態における撮影動作の流れを説明する。
【図7】電子的ブレ補正部1-7の動作の内容を説明する。
【図8】第3実施形態における撮影動作の流れを説明する。
【図9】第4実施形態における撮影動作の流れを説明する。
【図10】第5実施形態における撮影動作の流れを説明する。
【図11】第6実施形態における撮影動作の流れを説明する。
【図12】第5実施形態における撮影動作の流れを説明する。

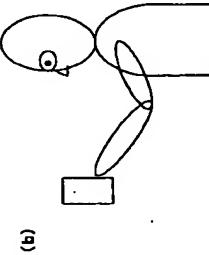
【符号の説明】

- 1.1.0 ブレ補正レンズ
- 1.2.0 撮像部
- 1.3.0 撮影センサ
- 1.4.1 電子部
- 1.4.2 電気機体
- 1.5.0 光学ファインダ
- 1.5.1 ファインダ光学系
- 1.5.2 撮影検出部
- 1.6.0 液晶モニタ
- 1.7.0 CPU
- 1.7.1 使用ファインダ判断部
- 1.7.2 ブレ補正動作判定部
- 1.7.3 電子的ブレ補正部
- 1.7.4 イメージセンサ
- 1.7.5 基礎遮光算算部
- 1.8.1 モニタスイッチ
- 1.8.2 半押しスイッチ
- 1.8.3 金押しスイッチ
- 1.8.4 快適開始スイッチ

(10) 【図2】



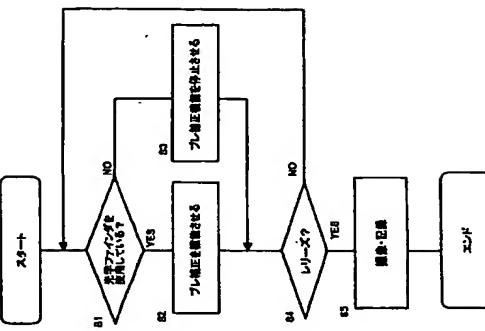
(a)



(b)

(10)

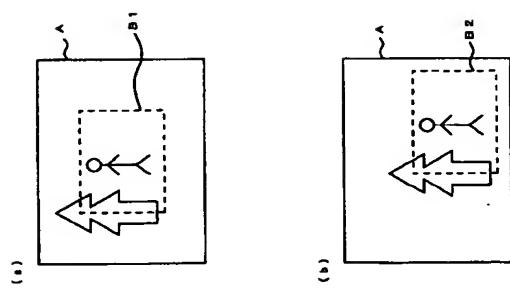
(11) 【図3】



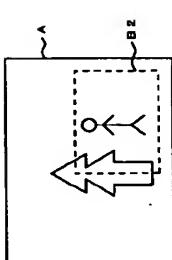
(11) 【図3】

(11)

(12) 【図4】



(a)

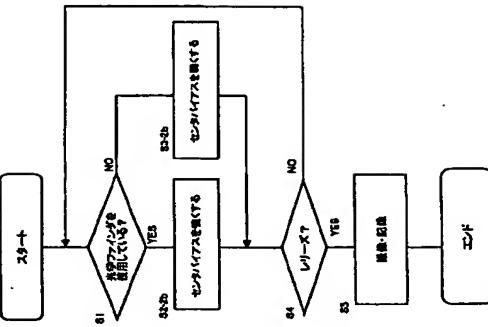


(b)

(12)

(12) 【図4】

(12) 【図5】

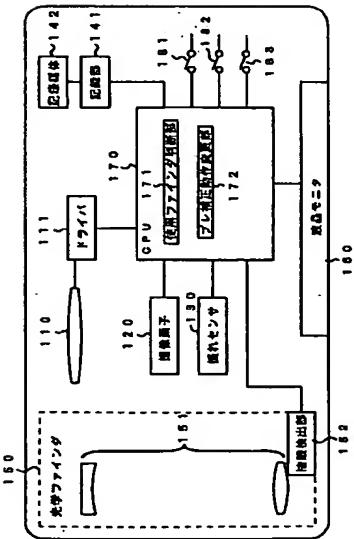


(12)

(12) 【図5】

(12) 【図6】

(12) 【図6】

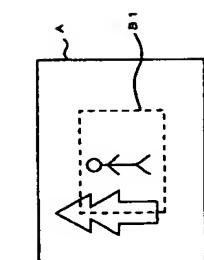


(9)

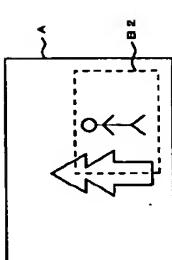
(12) 【図6】

(12) 【図6】

(12) 【図7】



(a)



(b)

(12)

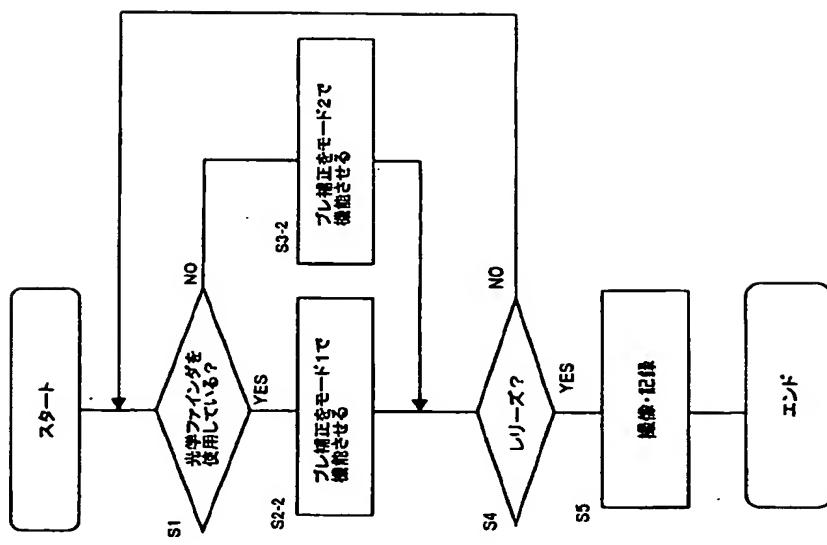
(12) 【図7】

(12) 【図7】

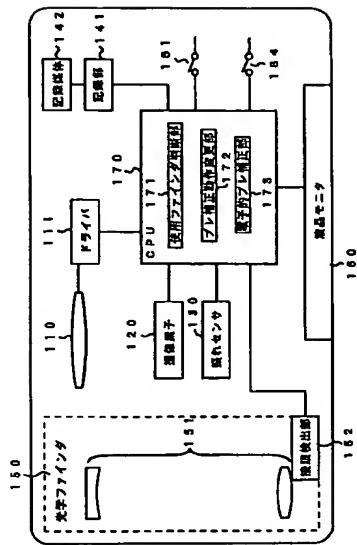
(12) 【図7】

(12) 【図7】

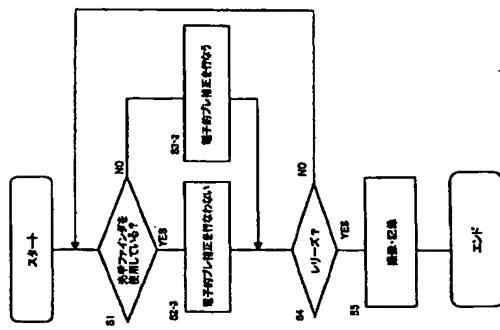
[図1]



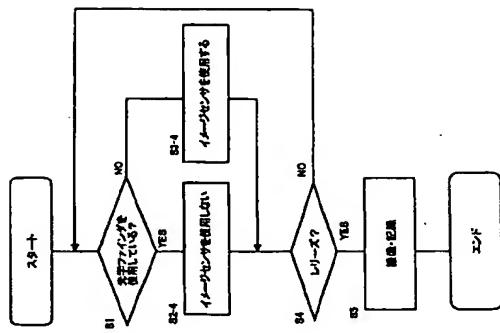
[図2]



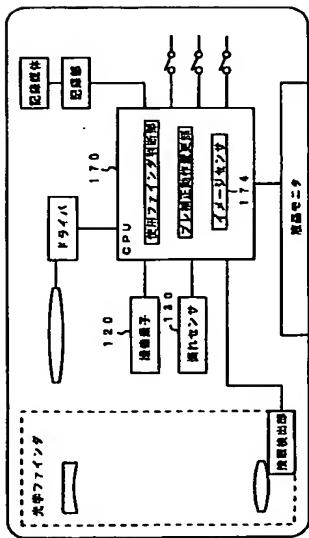
[図3]



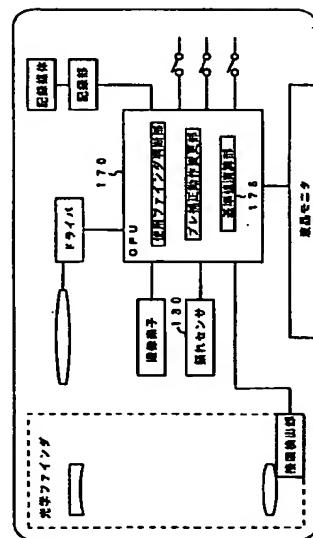
[図4]



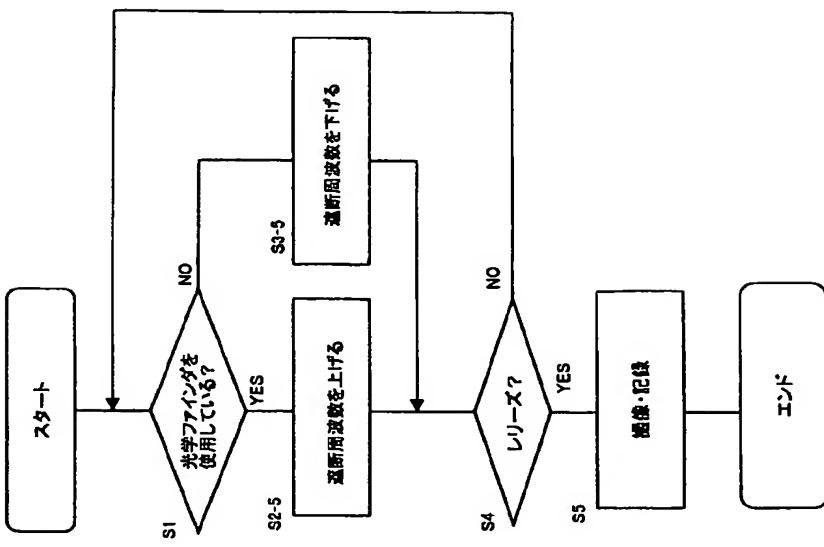
一
三



四



121



フロントペーパーの統き

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			Z
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